



# PATENT SPECIFICATION

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## PROVISIONAL SPECIFICATION

### Improvements in or relating to Collapsible Frames for Tents, Tables and other Articles of Furniture.

I, EDWARD ROBERT APPLETON, of Kensington House, 34, Kensington Road, Southend-on-Sea, a British subject, do hereby declare the nature of this invention to be as follows:—

The present invention relates to collapsible frames for tents, tables and other articles of furniture, the object being to provide a frame which, when folded up or collapsed shall be compact both in girth and length. One of the drawbacks of ordinary folding tent frames has been the inconvenient length of the frame when folded up and it is the object of this invention to provide a frame the length of which, in its folded condition, is only equal to about half the height of the frame when in use.

According to my invention I construct the frame of sliding or telescopic upright members connected together by ties which preferably cross each other and are pivotted together at their middles.

The telescopic or sliding effect can be obtained either by the use of tubes fitting one within the other, or by making the members of rectangular, semi-circular or other cross section and connecting them together side by side by means of brackets or sleeves, so that they can be drawn apart longitudinally to produce a vertical member of the required height.

I will now describe an example of my invention in the form of a square tent frame, such as would be suitable for beach bathing. I provide four uprights each made of two lengths of wood—say about one inch square section the two lengths being placed side by side and connected together by two sleeves surrounding the two members, one sleeve being secured to one member and the other sleeve to the other member, one

sleeve being secured to its member near the lower end thereof and the other sleeve to its member near the top thereof. In this way the members can be drawn longitudinally apart or slide one upon the other, while, at the same time, being held firmly together. Two of these collapsible or telescopic uprights are then connected together by cross bars; the upper end of each cross bar being attached respectively to the top of the lower members of each upright, while the lower ends of the cross bars are respectively attached to the lower ends of the upper members of the uprights, the bars being pivotted together at the point where they cross each other. This constitutes one side of the tent frame. A similar construction constitutes the opposite side of the tent frames. The back uprights of these two side members are then connected together by cross bars, the tops of the cross bars being pivotted respectively to the tops of the lower members of the uprights, while the bottom ends of the cross bars are pivotted to the lower ends of the upper members of the uprights. In this way when the telescopic members are drawn out the cross bars are opened in the form of an X, while when the upright members are telescoped together the cross bars will fold together, and the whole frame will fold together into a small compass.

When expanded the frame may be prevented from collapsing or folding up by pins passed through suitable holes in the telescopic members, or by connecting the tops of the two uprights not connected by cross bars and representing the front or entrance to the tent, by a removable or hinged cross bar, or all the uprights could be so connected.

I do not intend to restrict myself to the particular way described of obtain-

[Price 1/-]

ing the sliding effect, or the way in which the cross members are connected, since the frame may be varied provided that the desired sliding and folding motions are obtainable.

In a modified construction the upright members are made of tubes telescoping one within the other a longitudinal slot being pivotted in the outer tube to allow passage of the end of the cross bar connection, the cross bar then sliding up and down in the slot as the two tubes are worked one within the other. Or the inner member may be in the form of an ordinary tube while the outer member is of C cross section.

It will be obvious that various forms of framing may be constructed by connecting together a number of these telescopic uprights by cross bars. For example the frame for a shade for a 6 foot garden seat could be made by making two end frames in the manner described

and connecting the rear members of these frames by long cross bars each consisting of two parts hinged or connected together so that when the frame is folded up the cross bars can also be folded so as to be approximately of the same height as that of the telescoped uprights.

By the use of telescopic or sliding uprights I am able to make for example, a tent frame which when erected will be 6 feet high, but when collapsed the height will be only 42 inches.

A table frame can be made in a similar manner, the top being either in one rigid piece or formed of a series of connected slats, whereby the top can be folded or rolled up.

Dated this 14th day of March, 1922.

DICKER & POLLAK,  
Chartered Patent Agents,  
20 to 23, Holborn, London, E.C. 1,  
Agents for the Applicant.

#### COMPLETE SPECIFICATION.

#### Improvements in or relating to Collapsible Frames for Tents, Tables and other Articles of Furniture.

I, EDWARD ROBERT APPLETON, of Kensington House, 34, Kensington Road, Southend-on-Sea, a British subject, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The present invention relates to collapsible frames for tents, tables and other articles of furniture, the object being to provide a frame which, when folded up or collapsed, shall be compact both in girth and length. One of the drawbacks of ordinary folding tent frames has been the inconvenient length of the frame when collapsed, due to the length of the vertical members, and it has been sought to avoid this by forming the vertical members of two lengths hinged together, but such forms have involved double sets of cross pieces.

In accordance with the present invention, each vertical support, in contradistinction to that type of frame employing hinged supports, consists of telescopic or sliding members, adjacent supports being connected together by a single pair of cross stays, the ends of which are pivotted to the ends of the vertical members forming the supports.

The telescopic or sliding effect, which, *per se*, is already known, can be obtained

either by the use of tubes fitting one within the other, or by making the members of rectangular, semi-circular or other cross section and connecting them together side by side by means of brackets or sleeves, so that they can be drawn apart longitudinally to produce a vertical member of the required height.

I will now describe an example of my invention in the form of a square tent frame, such as would be suitable for beach bathing. I provide four uprights each made of two lengths of wood—say about one inch square section—the two lengths being placed side by side and connected together by two sleeves surrounding the two members, one sleeve being secured to one member and the other sleeve to the other member, one sleeve being secured to its member near the lower end thereof, and the other sleeve to its member near the top thereof. In this way the members can be drawn longitudinally apart or slide one upon the other, while, at the same time, being held firmly together. Two of these collapsible or telescopic uprights are then connected together by cross bars, the upper end of each cross bar being attached respectively to the top of the lower member of each upright, while the lower ends of the cross bars are respectively attached to the lower ends of the upper members

of the uprights, the bars being pivotted together at the point where they cross each other. This constitutes one side of the tent frame. A similar construction

5 constitutes the opposite side of the tent frame. The back uprights of these two side members are then connected together by cross bars, the tops of the cross bars being pivotted respectively to the tops of 10 the lower members of the uprights, while the bottom ends of the cross bars are pivotted to the lower ends of the upper members of the uprights. In this way when the telescopic members are drawn 15 out the cross bars are opened in the form of an X, while when the upright members are telescoped together the cross bars will fold together, and the whole frame will fold together into a small compass.

20 When expanded the frame may be prevented from collapsing or folding up by pins passed through suitable holes in the telescopic members, or by connecting the tops of the two uprights not connected by 25 cross bars and representing the front or entrance to the tent, by a removable or hinged cross bar, or all the uprights could be so connected.

I do not intend to restrict myself to the 30 particular way described of obtaining the sliding effect, or the way in which the cross members are connected, since the frame may be varied provided that the desired sliding and folding motions 35 are obtainable.

In a modified construction the upright members are made of tubes telescoping one within the other a longitudinal slot 40 being provided in the outer tube to allow passage of the end of the cross bar connection, the cross bar then sliding up and down in the slot as the two tubes are worked one within the other. Or the 45 inner member may be in the form of an ordinary tube while the outer member is of C cross section.

It will be obvious that various forms of framing may be constructed by connecting together a number of these telescopic uprights by cross bars. For 50 example, the frame for a shade for a 6 foot garden seat could be made by making two end frames in the manner described and connecting the rear members of these 55 frames by long cross bars each consisting of two parts hinged or connected together so that when the frame is folded up the cross bars can also be folded so as to be approximately of the same height 60 as that of the telescoped uprights.

By the use of telescopic or sliding uprights I am able to make for example, a tent frame which when erected will be 6 feet high, but when collapsed the height 65 will be only 42 inches.

A table frame can be made in a similar manner, the top being either in one rigid piece or formed of a series of connected slats, whereby the top can be folded or 70 rolled up.

An embodiment of the invention will now be described with reference to the accompanying drawings, in which:—

Fig. 1 represents a tent frame in its extended condition. 75

Fig. 2 being a rear elevation, the full lines representing the frame members fully extended, and the dotted lines indicating how they are folded towards each other. 80

Fig. 3 shows the frame completely folded.

Figs. 4 and 5 are detail views, being sections on the lines 4—4 and 5—5 respectively of Figure 1, as viewed from the 85 back.

Fig. 6 in elevation and Fig. 7 in horizontal section illustrate a modified construction in which telescopic tubes are employed in place of bars arranged side 90 by side. Fig. 8 is a detail.

Referring first to Figures 1 to 5 the frame is constituted by four pairs of bars 95 *a, b; c, d; e, f; and g, h*; each pair of bars being connected together by an upper strap or sleeve *j* rivetted to the upper end of the lower bar *b, d, f* or *h* respectively, and by a lower strap or sleeve *j'* rivetted to the lower end of the upper bar *a, c, e* or *g* respectively. The pairs of bars *a* 100 and *b, c* and *d, e* and *f, g* and *h* can thus slide one upon another in longitudinal direction.

In order to connect the four pairs of bars together to form a three sided frame, 105 cross ties 1, 2, 3, 4, 5, 6 are employed, the tie 1 being pivotted at one of its ends to the upper end of the bar *b*, its other end being pivotted to the lower end of bar *c*, while one end of the tie 2 is 110 pivotted to the lower end of bar *a* and its other end to the upper end of the bar *d*. The ties 5 and 6 are similarly pivotted to the bars, *e, f* and *c, d*.

The cross ties 3, 4, which form part of 115 the back of the frame are similarly pivotted to the bars *c, d* and *e, f*, but in order to allow the frame to fold up compactly, instead of lying on the outside, like the cross ties 1, 2 and 5, 6, they are 120 pivotted to angle plates *k* and *k'* secured respectively to the upper end of the bar *d* and the lower end of the bar *e* and to the upper end of the bar *f* and the lower end of bar *c*. 125

Each pair of cross ties is pivotted together at 7.

In order to strengthen the open side of the frame a top cross bar *l* may be provided being pivotted at *l'* to the member *a* 130

add having a lateral pin at its other end engaging in a slot  $l^2$  in the top of the member  $g$ .

In order to accommodate this cross bar 5 7 when the frame is folded up the strap  $j$  connecting the members  $a$  and  $b$  is arranged lower down on the bar  $b$  than is the case of the other straps, which are conveniently so positioned that one of the screws or rivets by which they are secured 10 to their respective bars  $d, f, h$  also acts as the pivot pin for the upper end of the cross ties 2, 3, 4, 6 and 5 respectively.

In the modified construction illustrated 15 in Figures 6 and 7 telescopic tubes are employed instead of side-by-side bars. These figures show the members corresponding to  $e, f, j^1$  in the earlier figures, similar reference characters being used 20 with the addition of an asterisk.

In order to provide for the telescopic movement the outer tube  $f^*$  is slotted as at  $f^{**}$  along a sufficient extent of its 25 length to receive and guide a pin or lug  $m$  (Figure 7) projecting from the inner tube  $e^*$ , this pin being conveniently used as a means for securing the sleeve  $j^{1*}$  carrying lugs so that it will move with it up and down on the tube  $e^*$ . The sleeves 30  $j^*$  and  $j^{1*}$  have pivoted to their lugs the ends of the cross ties 3 $^*$ , 4 $^*$  as in the previous arrangement. The sleeve  $f^*$  is similar to  $j^*$  but, of course, is fast on the outer tube  $f^*$ .

In the modification shown in Fig. 8 35 corresponding to the members  $c, d$ , in Fig. 1, the inner tube  $c^*$  has two lugs  $j^4, j^5$  projecting through the longitudinal slot in the outer tube  $d^*$  at right 40 angles to each other to which lugs the ends of the cross bars 4 and 1 are respectively pivoted. Similarly, lugs  $j^3, j^2$  are formed on or secured to the outer tube to which the ends of the cross bars 3 and 45 2 respectively are pivoted.

An advantage of my construction is that the closing action is automatic, that is to say, when the cross ties are folded 50 together the vertical members simultaneously collapse or move one upon or in the other and the vertical supports close in one against the other, and the whole structure folds up into a small compass, there being no bolts, locking, or other 55 securing devices to loosen or remove when it is desired to fold up the frame.

It will be evident that structures of 60 different sizes and shapes can be carried out on my system, for example, two or more uprights  $c, d, e, f$ , could be con-

nected together in line and provided with side frames similar to  $a, b, 1, 2$ , or a complete rectangular frame could be made to constitute a support for a table or the like. 65

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:— 70

1. A collapsible frame structure for tents, tables and the like, comprising a number of vertical supports, each consisting of two members adapted to telescope one within the other or to slide longitudinally one upon the other, adjacent 75 supports being connected together by a pair of cross stays, one end of each stay at each side being pivoted to one member and the other to the other member of the same vertical support, substantially as described. 80

2. A collapsible frame structure for tents, tables and the like, comprising a number of supports each consisting of a pair of rods or bars adapted to telescope one within the other or to slide one upon the other in longitudinal direction, a pair of cross ties connecting adjacent pairs of bars one of the cross ties being connected at one of its ends to the upper end of one sliding or telescopic member of one pair of rods or bars and at its other end to the lower end of one of the sliding or telescopic members of the adjacent pair of rods or bars, the other cross tie being connected to the lower end of the other sliding or telescopic member of the first named pair of rods or bars, while its other end is connected to the upper end of the other sliding or telescopic member of the second named pair of rods or bars. 85 90 95 100

3. A collapsible frame structure for tents, tables and the like as set forth in Claiming Clause 1 or 2, in which pairs of bars are longitudinally slidably connected together by means of sleeves each connected to one of the bars by a rivet or the like which also acts as the pivotal connection for one of the cross ties. 105 110

4. A collapsible frame structure for tents, tables and the like, substantially as described and illustrated in Figs. 1 to 5, or as modified in Figs. 6 and 7 or in Fig. 8 of the accompanying drawings. 115

Dated this 15th day of January, 1923.

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20-23, Holborn, London, E.C. 1.

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*FIG. 1.*

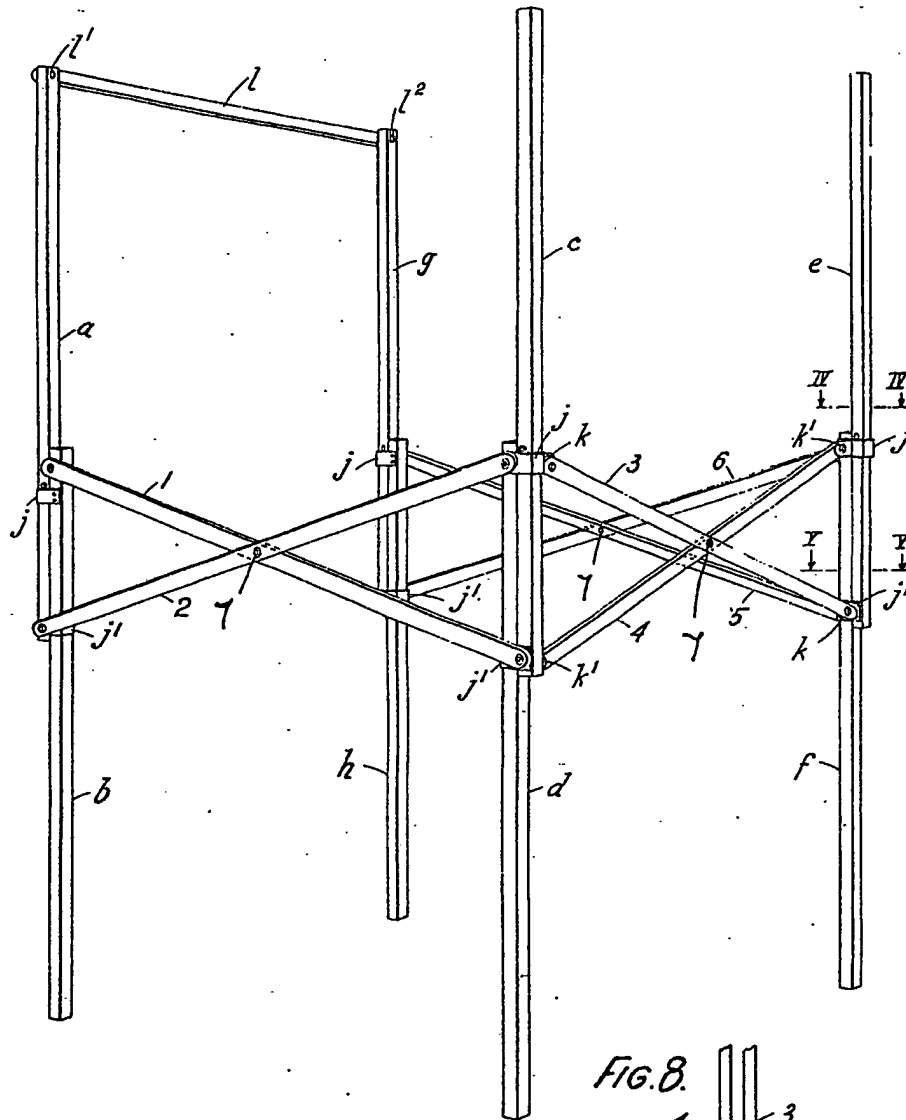


FIG. 3.

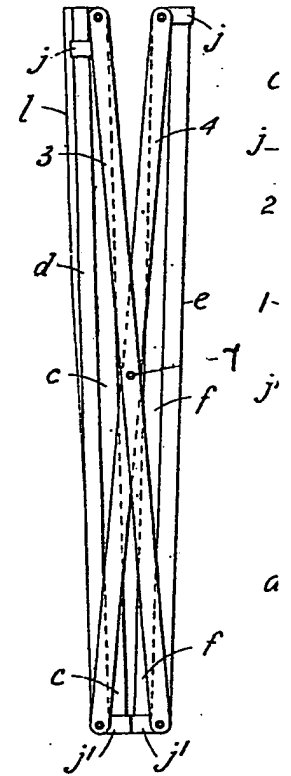


FIG.

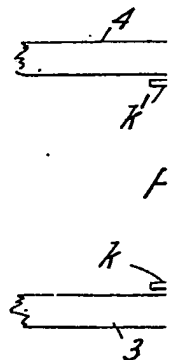
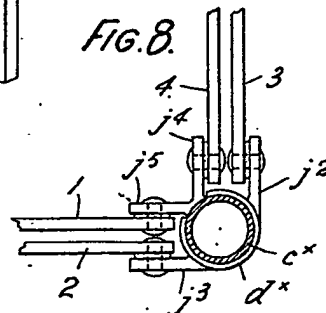


FIG. 8.



[This Drawing is a reproduction of the Original on a reduced scale.]

